

6. (Amended) The interrogation system in accordance with claim 1, wherein said transmitting device can perform a distance measurement using the response signal received from said responder device.

7. (Amended) The interrogation system in accordance with claim 1, wherein the sensor of the responder device is designed to be received in a portable harness system.

8. (Amended) The interrogation system in accordance with claim 1, wherein at least a part thereof can be integrated into a weapon.

9. (Amended) The interrogation system in accordance with claim 1 wherein said responder device includes an antenna for receiving said electromagnetic pulses from said transmitting device.

REMARKS

Claim 1-9 remain in this case for the Examiner's consideration and have all been amended. A "Version With Markings To Show Changes Made" to the specification and claims is presented on a separate sheet at the conclusion of this Amendment.

A. Formal Matters

The drawings have been objected to under 37 CFR § 1.83(a) because they fail to label boxes in Figures 1 and 2 and purportedly do not explicitly identify interrogation system element (10) and responder system element (20). To overcome this basis of objection, Applicants are submitting a substitute sheet of drawings with this Amendment which labels the boxes in Figures 1 and 2 as well as more clearly identifying the interrogation system element (10) and responder system element (20).

The title of the invention has been objected to as not being descriptive. To overcome this basis of objection, Applicants have substituted the title suggested by the

Examiner (i.e., INTERROGATION AND RESPONDER SYSTEM FOR IDENTIFYING A TARGET).

B. Prior Art Rejections

1. The Invention

Applicants have invented a secure interrogation system for identifying whether a target is friendly or unfriendly. Applicants' interrogation system features a transmitting device which transmits an inquiry to a target responder device in the form of directionally specific single electromagnetic pulses or short bursts of electromagnetic pulses which are staggered with different distances between pulses or short bursts of pulses in order to transmit coded information. Applicants' responder device has a sensor for detecting such electromagnetic pulses, an evaluation unit for processing such detected pulses and a transmitter for sending back a response to the transmitting device's inquiry. The response signal from the responder device can then be received by the transmitting unit.

2. The Cited Art Distinguished

Claims 1-5 and 7-9 have been rejected under 35 U.S.C. § 103(a) as being obvious over D'Isepo's U.S. Patent No. 5,583,507 ("D'Isepo patent") in view of Fuchter's U.S. Patent No. 6,140,982 ("Fuchter patent"). The D'Isepo patent discloses a passive friend or foe identification system. In the D'Isepo system, an active signal is transmitted from an interrogator and then reflected off of a passive reflective surface. The characteristics of D'Isepo's reflective surface can be varied in order to reflect the interrogator's signal in different ways. As shown in Figure 5, the signal from D'Isepo's interrogator appears to be a continuous signal. The Fuchter patent also discloses a friend or foe identification system. In the Fuchter system, the interrogator generates a continuous querying electromagnetic "wave" and receives a similar electromagnetic "wave" in response (see, col. 1, line 66 - col. 2, line 11).

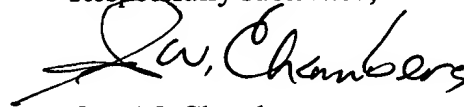
Neither the D'Isepo patent nor the Fuchter patent disclose Applicants' invention of having a transmitting device send a directionally specific single electromagnetic pulse or short bursts of electromagnetic pulses which are staggered with different distances between the pulses or short bursts of pulses in order to transmit coded information. Since, unlike the D'Isepo and Fuchter systems, Applicants' system does not involve the transmission of continuous waves, Applicants' system requires less energy and, as such, can be constructed more compactly for use, for example, by individual soldiers. Moreover, because Applicants' pulses are directionally specific and of short duration, it is much more difficult for an enemy to intercept Applicants' signals and mimic them to potentially disastrous effect. Finally, by using different distances between Applicants' pulses or short bursts of pulses, Applicant is able to transmit coded information. For these reasons, the D'Isepo and Fuchter patents, either individually or in combination, would not render as obvious the subject matter of Applicants' pending claims.

Applicants' claim 6 has been rejected under 35 U.S.C. § 103(a) as being obvious over the D'Isepo patent in view of the Fuchter patent and Wagner's U.S. Patent No. 5,130,713 ("Wagner patent"). The Wagner patent appears to disclose a pulsed laser positioning device which works in combination with a high frequency or microwave range communication device to distinguish friend from foe. The Wagner patent is cited by the Examiner to show that a pulsed laser positioning device can perform distance measurement (see, col. 6, line 30). While the Wagner patent does indeed mention the concept of "distance measurement", Applicants find no teaching in the Wagner patent of using a transmitting device to send a directionally specific single electromagnetic pulse or short bursts of electromagnetic pulses which are staggered with different distances between said pulses or short bursts of pulses in order to transmit coded information. Since the Wagner patent fails to disclose the inventive teachings missing from the D'Isepo and Fuchter patents, adding the Wagner patent to the D'Isepo and Fuchter patents would not render as obvious Applicants' claimed invention.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (415) 576-0200.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

Please substitute the following title: INTERROGATION AND
RESPONDER SYSTEM FOR IDENTIFYING A TARGET

IN THE CLAIMS:

Please amend claims 1-7 and 9 so that the claims read as follows:

1. (Amended) An interrogation system comprising:

a transmitting device which transmits an inquiry to [for the interrogation of] a responder device in the form of directionally specific single electromagnetic pulses or short bursts of electromagnetic pulses which are staggered with different distances between said pulses or short bursts of pulses in order to transmit coded information,

a responder device having a sensor for detecting such electromagnetic pulses, an evaluation unit for processing such detected pulses and a transmitter for sending back a response to the transmitting device's inquiry, [and receiving means, wherein the transmitting device is designed in such a way that modulated and/or coded electromagnetic radiation can be transmitted, and wherein the responder device has sensor means for receiving this radiation and for converting it into electrical signals, an evaluation unit for processing the electrical signals, as well as transmitting means in order to return, in accordance with a decision made by the evaluation unit, a reply signal to the receiving means,]

wherein said [the] transmitting device further contains a transmitting device sensor for detecting a response from said responder device [a control circuit and an antenna which are designed in such a way that individual electromagnetic pulses, or short bursts of pulses, can be generated in the giga-frequency range, which are radiated by the antenna in a chronologically modulated and directional manner].

2. (Amended) The interrogation system in accordance with claim 1, wherein said transmitting device has a control circuit and an antenna for transmitting its inquiry signals [are placed into a transmitting device housing, which is designed for being mounted on a weapon].

3. (Amended) The interrogation system in accordance with claim 2, wherein the antenna is integrated into said [a] control circuit.

4. (Amended) The interrogation system in accordance with claim 1, wherein said directional specificity is achieved with [the frequency of the pulses transmitted by the transmitting device has a value, by means of which, using the antenna, a strongly directional radiating characteristic with] an angle of a [the] radiated lobe below 50 mrad [is achieved].

5. (Amended) The interrogation system in accordance with claim 4 [1], wherein said responder generates staggered information pulses with different distances between said pulses corresponding to said staggered transmitting device pulses [the modulation frequency of the transmitting device lies in the range between 10 and 1000 GHz, or 100 to 1000 GHz].

6. (Amended) The interrogation system in accordance with claim 1, wherein said transmitting device can perform a distance measurement using the response signal received from said responder device [the sensor means of the responder device are designed to transmit response signals, which can be received by the transmitting device in order to also make possible a distance measurement between the transmitting device and the responder device in a central unit of the transmitting device].

7. (Amended) The interrogation system in accordance with claim 1, wherein the sensor [means] of the responder device is [are] designed to be received in a portable harness system.

8. (Amended) The interrogation system in accordance with claim 1, wherein at least a part thereof [it] can be integrated into a weapon.

9. (Amended) The interrogation system in accordance with claim 1 wherein said responder device includes an antenna for receiving said electromagnetic pulses from said transmitting device [A system comprising an interrogation system containing a transmitting device for the interrogation of a responder device and receiving means, wherein the transmitting device is designed in such a way that modulated and/or coded electromagnetic radiation can be transmitted, and with a responder device, which has sensor means for receiving this radiation and for converting it into electrical signals, an evaluation unit for processing the electrical signals, as well as transmitting means in order to return, in accordance with a decision made by the evaluation unit, a reply signal to the interrogation system receiving means, wherein the transmitting device contains a control circuit and an antenna which are designed in such a way that individual electromagnetic pulses, or short bursts of pulses, can be generated in the giga-frequency range, which are radiated by the antenna chronologically modulated and directionally].